Weekly Report for 07/28/2014

Highlights

• Added new features of taking arbitrary beam profile (longitudinal) to touschekLifetime routine. Tested and updated. (Aimin Xiao)

APS Renewal and Upgrade

• Continue MBA Injection error simulation. Finished another error scenario sets. (Aimin Xiao)

MCR Operations

Linac Operations

• Completed radiation calculation for the pc gun bend line. (Jeff Dooling)

• Results indicate direct strike on the linac shield wall at 1-nC per pulse at 30 Hz (30 nA) with beam energy of 8.5 MeV will generate just under 1 mrem/hr in the Laser Room. (Jeff Dooling)

• With 5 cm of Pb, the rate is reduced to 0.02 mrem/hr. Sent results to T. Smith (ASD-RF). (Jeff Dooling)

APS Machine Studies

Storage Ring Studies

• Conducted SCU0 beam loss studies with K. Harkay. (Jeff Dooling)

• Firing a combination of injection kickers based on elegant simulations, was able to demonstrate a beam dump without an SCU0 quench. Still need to make kickers work with MPS triggering. (Jeff Dooling)

• Worked with Vadim on local impedance measurement, preparing for this shutdown ID06 realignment. (Aimin Xiao)

• Measured partially ID gap beam orbit perturbation (try to find large orbit motion source) (Aimin Xiao)

Linac Studies

• Drafted a tech note describing low-level rf measurements of generation III thermionic gun 3G1 conducted in the Vacuum Lab. (Jeff Dooling)

ITS Studies

• Measured low-level rf gun characteristics of generation III thermionic 3G2 recently installed in the ITS, first at 5 W of cathode heater power, then the following day at 15 W. (Jeff Dooling)

• Found some disagreement over the calculation of cathode heater power. (Jeff Dooling)

APS Machine Research and Development

Storage Ring Research and Development

• Discussed specs for new SCU1 fiber bundle with Ron Kramer of FiberGuide Industries. (Jeff Dooling)

• Requested that Steve Kramer (NSLS-II, no relation) return the two quartz fiber bundles I sent him in 2009. Kramer said he would do so. (Jeff Dooling)

• Contacted N. Mokhov (FNAL) regarding MARS scraper simulation issue. (Jeff Dooling)

Linac Research and Development

• Met with S. Shoaf (AES-CTL) to discuss controls for pc gun linac installation. (Jeff Dooling)

APS Machine Software

AOP Applications Software

• Add new features of taking arbitrary beam profile (longitudinal) to touschekLifetime routine. Tested and updated. (Aimin Xiao)

Injectors

• changed BBPMHistWaveformSetup to use the offset file in current injection tune controllaw directory which is being updated by switching PEM. (Hairong Shang)

• modified BRampAutoCorr to skip ramp correction for all magnets when BM ramp is off, and changed RampTest so that it no longer suspends/resumes booster ramp correction since it is being handled by BRampAutoCorr now; And added ping uncontrol before checking BM ramp status to avoid runcontrol ping timeout. (Hairong Shang)

• implemented and tested new computation method for BM IRamp gain and delay, which was confirmed to work well and BM bcontrol is able to run in IRamp mode now. (Hairong Shang)

• wrote computeBoosterTune which collects booster beam history data and then do naff processing to get the synch-, x- and y-tune components from booster beam history to compare with DSP-based process runs in iocbbpm3 with FFT processing and improve its performance. (Hairong Shang)

• modified IRamp correction using cosin gain fuction to improve the ramp correction per CY's requestion, ready for test. (Hairong Shang)

General

• made nn linear as default interpolation method in sdds2dinterpolate (Hairong Shang)

• working on LibearGDXTestBench (requested by Diag group), it provides the quick and convenient tool for DIAG to access and control FPGA GDX box with buttun clicks instead of numerous commands typing. (Hairong Shang)

Safety and Required Training

• Completed ESH108 training. (Jeff Dooling)

Miscellaneous

• Found IEX main PS trip. Informed Boris and Marty to fix it. After fixing, recovered IEX without impact to other users experiments. (Aimin Xiao)